

Attorney Docket No. SHAN01US

REMARKS

This communication is in response to the first Office Action dated April 27, 2004. In that Office Action, the Examiner rejected many of the claims under §112 as being indefinite. Specifically, the term "substantially triangular shape" is regarded as being indefinite. The Examiner also objects to the use of the term "said waveguide support" in Claim 3, as well as the term "semi-circular" in Claims 7 and 14.

The Examiner also rejects Claims 1-3, 5, and 7-10 as being anticipated by U.S. Patent No. 5,199,460 to Bruce et al. Claims 1, 4, 6, 11-12, and 14-16 are rejected as being anticipated by U.S. Patent No. 6,154,582 to Bazylenko et al. Finally, Claim 13 stands rejected as being obvious over the combination of Bazylenko and Bruce.

Turning first to the rejections under §112, applicant has cancelled Claims 3, 7, and 14-15. In addition, Claims 1, 4, 6, 9, 11-13, and 16 have been amended to address the Examiner's concerns. Specifically, these claims have been amended to specifically relate back to the steps recited in the corresponding independent claims. With these amendments, applicant respectfully submits that the remaining claims as amended satisfy §112.

Turning next the rejections under the cite prior art, the Bruce patent is nothing more than a prior art method of forming an optical waveguide on a planar lower cladding layer. As seen in Figure 1, the lower cladding layer 20 is substantially planar. Unlike Claims 1 and 11 as amended, the lower cladding layer 20 of the Bruce patent does not disclose a waveguide support structure that is raised above the level of the lower cladding layer such that the support has a width and height dimension.

Moreover, with respect to Claim 10 as amended, the Bruce patent not only does not disclose a raised waveguide support, but does not also disclose a waveguide support that has a width less than its height.

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With respect to Claim 9, the Examiner points to Figure 1 and argues that this shows the *in situ* formation of multiple layers onto a substrate. The term *in situ* as used in the semiconductor processing arts refers to the ability to perform multiple steps or tasks without the need to remove the semiconductor wafer from a process chamber. See, e.g., www.sematech.org/resources/publishing/dictionary. This is advantageous from a manufacturing efficiency and yield standpoint.

As noted on pages 11-12 of the present specification, because there is no etching of the core material after deposition, the upper cladding layer can be deposited *in situ* (in the same process chamber) as the core material, thereby adding to the manufacturing efficiency of the present invention. In contrast, the cited prior art makes no mention of *in situ* formation of the core material and the upper cladding layer. The Examiner appears to indicate that the term *in situ* means "on top of the substrate". Applicant does not intend that meaning of the term *in situ*, and believes that that meaning is not a conventional use of the term. In any event, the term *in situ* as used in the claims is intended to mean the commonly understood definition of "within the same chamber" as used in the art. Using this definition, Claims 9 and 16 is believed to be allowable.

Further, when an HDPCVD process is used, as required by Claims 4, 11-13, 16, and 20, as detailed in my U.S. Patent No. 6,251,795, a "sputter-and-deposition HDPCVD process" produces a non-rectangular (specifically triangular or bullet shaped or tapered) waveguide. By simply ceasing the sputtering component of the HDPCVD process, and allowing only the deposition component of the HDPCVD process to proceed, the top cladding layer can be formed *in situ*. Once again, the combination of HDPCVD and *in situ* process as claimed provides significant advantages over the prior art.

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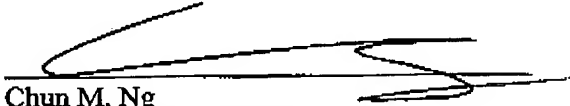
Turning next to the Bazylenko patent, much of the same arguments made above apply equally. Specifically, the Bazylenko patent does not teach the use of an *in situ* manufacturing process for the core layer and the upper cladding layer. Bazylenko does not teach a waveguide support that has a width that is less than its height. Assuming for the sake of argument that Bazylenko teaches a waveguide support, it is clear from Figures 6A-6H of Bazylenko that the width of the "support" is much greater than the height of the support. Thus, Claim 11 is in condition for allowance.

If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-6488.

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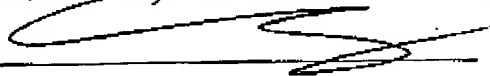
Respectfully submitted,

Date: 7/21/04


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I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelop addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on July 21, 2004 by Chun M. Ng.



AND

I hereby certify that this correspondence is being transmitted via facsimile to the U.S. Patent and Trademark Office at (703) 872-9306 on July 21, 2004 by Chun M. Ng.

